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**Medical and Surgical
Experiences**
in the
South African War



Being addresses to the
**Toronto Clinical Society and Canadian
Medical Association**

by
Lieut.-Colonel G. Sterling Ryerson, M. D.
*Lately British and Canadian Red Cross Commissioner with Lord Roberts'
Headquarters in South Africa.*

1900

From
Sir Edmund Walker
1913

**Impressions
of the
Medical Side
of the War in
South Africa**

By
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(Stenographic Report.)

A meeting of the Toronto Clinical Society was held in St. George's Hall, Toronto, on Wednesday evening, October 3d, Dr. W. H. B. Aikins, the President, occupying the chair.

President's annual address:

After thanking the Fellows for the honor conferred on him in his election to the presidency, he referred to the honor brought to the Clinical Society by Dr. G. S. Ryerson's work in South Africa. Dr. Ryerson by his devotion to the Red Cross organization, had brought great credit to the Clinical Society as well as to the whole profession in the Dominion of Canada, and had advanced the profession of Canada in the eyes of the world. * * * Dr. G. Sterling Ryerson gave an interesting address upon "The Medical Side of the South African War."

Nearly a year ago Dr. Ryerson appealed to the public as chairman of the Red Cross Society, for aid to the sick and wounded, and in doing so stated that the sick apart from the wounded would, upon an ordinary calculation, amount to at least 16,000 to 17,000. His view was looked upon as chimerical and overdrawn, yet statistics prove that there have

been sent to England, up to July 25th, 18,374 sick officers and men, while no less than 31,305 have been treated in the base hospitals at Capetown, with 362 deaths, or 1.15 per cent. These figures do not include those of Deelfontein, Naauwpoort, Kimberley, Bloemfontein or other places in the western colony or in Natal, so that it is not far from the truth to say that a hundred thousand men have passed through hospital from disease alone. This emphasizes the fact that in war the physician is more required than the surgeon, which is quite in opposition to the popular notion. 4,867 officers and men have died of disease up to July 25th, the principal causes of death being enteric fever and pneumonia, whereas only 3,463 were killed in action or died of wounds. The statistics of this war, so far as they are available, compare most favorably with former ones, a fact which redounds to the credit of the Army Medical Service. For instance, in the Crimea, 4,602 were killed, while 17,580 died of disease; in the American civil war on the Union side 93,969 were killed, but 186,216 died of disease; in the Spanish-American war 454 were killed and 5,277 died of disease. I have already alluded to the very small percentage of death at Capetown, namely, 1.15 per cent.; that at Bloemfontein, where the epidemic of

enteric raged, was naturally larger, 21 per cent. In London hospitals it is 20.04 per cent., and in Indian hospitals 26.04 per cent. Compared with former campaigns it makes a most favorable showing; thus the death rate from enteric during the Chittral campaign, 1895, was 28 per cent.; Nile campaign, 1898, 28 per cent.; Matabele war, 1896-97, 32 per cent.; Soudan campaign, 1884-5, 39 per cent., and the Dongola campaign, 1896, 50 per cent. Two hundred and forty-five medical officers and orderlies lost their lives in this campaign.

These statistics are very satisfactory in view of the attacks which have been made upon the medical service. In this connection it may not be out of place to say that these attacks will prove a blessing in disguise, for he felt perfectly confident that an impartial investigation will result in the greatest credit being given to our profession. As Dr. Conan Doyle said of Paul Kruger, he should be given a public monument for unifying the British peoples; so may it be said of Mr. Burdett-Coutts, that the profession should be eternally grateful to him for affording an opportunity for public examination of its merits.

The epidemic of enteric fever which raged in South Africa can be traced to the three months the army lay

at Modder River. The soil of that place is of the lightest character. Having been trampled and pulverized by thousands of feet it formed an impalpable powder. This, mixed with the excreta, was wafted in dense clouds into the men's tents, into their mouths, food and drink. He observed that, in many cases, the latrines were but a very short distance from the wooden frames on which was hung the fresh meat for the men. The meat was uncovered by cloths and was often literally black with flies. The flies were everywhere, and nowhere were they thicker than in the hospital tents. Where men were unconscious the flies fed on the saliva, as in many cases sufficient mosquito-netting was unobtainable. The water was muddy and drawn from the Modder River, which may have been defiled by the Boers further up. Once started, it is easy to understand how large bodies of men thrown together became infected.

The camps contained from five hundred to thirty thousand men, in the ordinary position, close together, with nine or ten men in a tent. More than that, there is the fact of urination and defecation after dark. The men will not take the trouble to go one hundred or even fifty yards to the latrine, but urinate and defecate in the neighborhood of the tent. This is

wafted into the dust and thus becomes mixed with the food. He spoke of the circular dust storms, during which it was impossible to keep the dust out of the tents. This was the way in which infection was carried; and then, the men were exhausted after long marches; on many occasions they had had little food, and that often of imperfect character, living on one or two biscuits a day. Under these conditions the men were thoroughly used up and in a position to acquire any disease that might be going. Regarding the disease itself it seemed to present the ordinary appearance, no special characteristics to be observed. The blood test was used in many cases. Regarding the question of immunity after inoculation, or by the hypodermic injection of serum, very careful accounts have been kept in the hospitals of those inoculated and those who were not; and while statistics have not yet been published, where they were inoculated once or twice, especially twice, they avoided the disease, or had it mildly. Dr. Ryerson mentioned the case of an officer who had been inoculated twice who contracted the disease but recovered. The opinion is that inoculation is preventive. With improved serum we may yet be able to prevent this great scourge of armies. In addition there is endemic enteric, espe-

cially in Bloemfontein, therefore there are local causes also. The treatment of typhoid was practically the treatment which is adopted in Toronto and everywhere else. Disinfection of the bowel either by means of LISTERINE or boric acid, taken internally, or enemas, were considered in many cases to be remarkably successful. Another form of treatment was that of starvation. They were starved for seven or eight days. He considered that in some cases it might be dangerous, because a number of the men were exhausted when brought in. Nothing whatever to eat for seven days was their treatment; nothing at all except water, and all of that they could drink. The medical officer in charge of these cases, and under whose supervision this plan of treatment was carried out, informed Dr. Ryerson that he had fewer deaths than in any other hospital in Bloemfontein. Dysentery: this was another very prevalent disease, and you hear of a great many men affected with this disease when they merely had ordinary diarrhea. Dr. Ryerson said that during his service as surgeon with the troops engaged in the suppression of the North-West Rebellion in 1885, he had observed the good effect of several drachm doses of LISTERINE in treating camp diarrhea and dysentery, caused by drinking

the alkali water of the plains. The treatment of dysentery usually employed in South Africa was pretty thorough purging by means of castor oil, followed by Dover's powder, and in many cases it was found to work extremely well. Syringing, etc., did not work so satisfactorily. Sulphate of magnesia in drachm doses, frequently repeated, was successful—one in an hour or one in two hours. An infusion of geranium roots, a native remedy, was used with success in Natal. These forms of treatment were the most satisfactory of anything used there. The tenesmus, etc., was always causing a great deal of annoyance. This was chiefly treated by free enemata and some form of narcotic. Another special form of fever, which is endemic out there, was a form of fever resembling Malta fever. Dr. Ryerson believes this to be really a form of malaria, because it was ushered in with a chill followed by high temperature—a rising temperature at night and a falling temperature in the morning, attended sometimes with diarrhea, afterwards attended by pain in all parts of the body and followed by intense prostration. It seems to demoralize the red blood corpuscles. The patient is as white as a ghost when he comes through it; the pallor is intense, and the prostration great which follows it. Another form

of fever and that is continued fever, in which there is a very slight rise at night and fall in the temperature in the morning, and which lasts usually three weeks, constitutes a very large proportion of the cases going to hospital with fever. No case has ever been followed by death, and it is not followed by that intense anemia of veldt fever. Referring to the medical orderlies in time of war, Dr. Ryerson stated that there was no duty which was so disgusting, and at the same time so trying and tiresome, as that performed by these men. Dealing with the cases of enteric fever, for instance, when a man has seventeen or eighteen motions a day, and an orderly has twelve to twenty men to attend to, the duty is very trying indeed, but Dr. Ryerson believes that these men performed their duty well. The treatment of the surgical case, as compared with the enteric, is simply fun for the orderly. With the modern bullet wound there is very little dressing required; but, of course, when there is destruction of the bone there is more to be done. The conduct of these orderlies has been of the most noble character. Answering an inquiry, Dr. Ryerson stated that pneumonia was not common during the early period of the epidemic; but later on, when the wet weather set in, pneumonia became a

very constant accompaniment. Then, ten or twelve men would be carried out during the course of the day as a result of that complication.

Dr. Ryerson was asked regarding a report in the *British Medical Journal* as to whether there were any cases of typhus fever. Dr. Ryerson said that was a mistake; there was no typhus. He referred to the absence of small-pox. With an enormous army of 200,000 men, nothing proves more definitely and more emphatically the importance and power of vaccination when there never was a single case of small-pox in the entire army. There was small-pox among the blacks, but not a single case among the white soldiers.

Replying to a request for further information regarding inoculation, Dr. Ryerson said inoculation was not compulsory. The serum was supplied by the Imperial Government authorities. The symptoms are practically those of typhoid; severe pain in the abdomen; temperature runs up to 102° or 103° ; morning fall and evening rise, accompanied by prostration, furred tongue, loss of appetite, and general malaise. This condition lasted about a week. Some suffer more than others. There were no undesirable results that he heard; no mortality.

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**Some Surgical
Experiences
in the
War in
South Africa.***

By
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erts' Headquarters.

A great war necessarily presents many phases and points of view, and as the time allowed for the reading of papers by associations, such as I have the honor to address, is limited, I shall only deal briefly with one or two phases which I hope may prove of interest.

The war in South Africa is interesting surgically because of the experience which has been gained of the effect of modern arms of precision, and of antiseptic methods on the field of battle and in the hospitals. It is too early yet to draw deductions from the statistics of the war, but it may be noted in passing that while 936 officers and 11,701 non-commissioned officers and men have been wounded—12,637 in all—only 732 have died of wounds received in action, an infinitesimal proportion, which may be fairly ascribed to the aseptic character of the bullet, to the prompt application of a first aid dressing and to the able and eminently efficient treatment which the wounded received at the hands of the medical officers in the hospitals. The Mauser bullet has justly been described as a merciful one. Its action

*Read before the Canadian Medical Association, Ottawa meeting, September, 1900.

upon human tissues depends, however, upon the range at which it is fired. It has been noticed that when it is fired at short ranges, within two hundred yards, it has an explosive character. The nickel case seems to expand and become detached, causing a severe, lacerated and contused wound, which heals but slowly. If it strike bone it crushes and destroys it. If fired at longer ranges it makes a clean drilled hole in bone, and if it strike soft parts only a very small wound is made, there being little difference between the wound of entrance and that of exit, which bleeds but little unless an important vessel is injured. In the case of the soft-nose or dum-dum bullet the wound is much more severe, for even where the soft parts only are injured, the expansion of the lead causes great destruction of parts and a huge wound of exit, the wound of entrance being small. When it strikes bone it pulverizes and disintegrates it. If the range is very long, 2,000 yards or more, the soft-nose bullet "mushrooms" and causes an extensive flesh wound. It has been alleged that poisoned bullets were used. I have seen many of these so-called poisoned bullets. They are simply green with verdigris, which in all probability is burned off in the rifle while the bullet is in transit through the barrel. I have

heard of no case where poisoning by a bullet could fairly be said to have occurred. It has been charged that explosive bullets have been used. I very much doubt the fact. The explosive character of Mausers at certain ranges has already been referred to. It is probably this which gave rise to the statement. When a Mauser bullet strikes a hard substance at a short range the impact is terrific, and causes the bullet to fly into a thousand pieces. Besides Mauser rifles the Boers made use of many thousands of Martini-Henrys. As is well known, the bullet is a heavy one, and where wounds are inflicted they are in striking contrast to those inflicted by the Mauser. Great destruction of soft parts or bone follows, necessitating amputation in many cases. It is remarkable how few amputations have been performed during this war. Dr. Kendal Franks told the writer that in his experience not more than twenty amputations had been done in 3,000 cases, which must be attributed to the character of the wounds and to the conservative spirit of the surgery of the day. I had the opportunity of examining a good many Boer wounded and found that the bullet of the Lee-Metford rifle inflicted a wound very similar in character to that of the Mauser. It is not necessary, therefore, in this place to say

anything more on that head. The effect of shell-fire was interesting, if not destructive. The Boers say it is no good and only makes one keep one's head down. The lyddite shells are not nearly so destructive as was supposed. When they strike soft ground they do not explode. When they strike a rock they explode with great violence, but our friends the enemy were so cleverly entrenched that but few were injured by them. I remember seeing one man stained a bright yellow from head to foot and apparently not much the worse for it. They said the escaping gas made their head ache and they found that a few drops of vinegar taken inwardly relieved it. Every Boer was provided with a small bottle of vinegar to ward off the ill effects of lyddite. I have said that I had the opportunity of seeing a good many Boer wounded, and as their condition presented special features of interest, I will venture to detain you a few minutes by referring to some of the cases I saw. When I was at Kimberley we had 147 Boer wounded in the roller rink, which had been converted into a temporary hospital. They were of all ages, from fifteen to sixty-five, and bore their captivity and sufferings with dignity and patience. They had been wounded at Paardeburg chiefly, and in many cases the wounds

had been undressed for sixteen and seventeen days. I remember one man who had been shot through the elbow joint. His only treatment had been the universal Boer remedy, tobacco juice. The arm was enormously swollen and almost erysipelatous in appearance. Mr. Roberts, civil surgeon, opened up the joint freely and removed considerable masses of bone, and found a large piece of shell so firmly imbedded in the humerus that it could not be removed. The wound was very offensive. It was freely drained and douched with bichloride, dressed antiseptically and supported by a rectangular splint. This man made an excellent recovery, with a movable joint. Another man was shot through the body by a round ball from a shrapnel-shell. The projectile entered four inches below and to the left of the heart and came out through the sixth intercostal space on the right side and posteriorly. He had been wounded sixteen days previously, and at the time that I saw him he had practically no symptoms. This is the more remarkable when the character of the missile is considered. I have seen a good many penetrating wounds of the abdomen which have produced little immediate disturbance. One was the case of a medical officer who was shot through the stomach. He

had little to eat for twelve hours before his wound. When he was wounded he had the sense to abstain from drinking, notwithstanding the urgent thirst; and further, he lay still where he was for twelve hours. He made an excellent recovery, but I observed that some three months after his wound had healed that he complained of dragging and discomfort in the neighborhood of the wound, and was eventually invalided home. Two of his companions who had been shot through the abdomen at the same time were so unwise as to drink water and died in a few days from peritonitis. This may have been caused by the filthy water. It was generally understood in South Africa that abdominal section in wounds of the intestine was inadvisable, judged by the results; but I know of one case where an excellent result was obtained. It was surprising how great joints like the knee could be pierced by Mauser bullets with impunity. I remember the case of an officer who was shot through the knee joint at the battle of Korn Spruit. In six weeks he was walking about without a crutch, and had returned to duty. Ten days later this officer, with his squadron, was ordered to take a kopje. His brother officers were killed beside him, and he was shot again in the same knee. The wound

proved to have been caused by a spent bullet, and was unimportant, though the missile had lodged in the patella tendon. Wounds of the chest by Mauser bullets were comparatively innocuous, and healed readily. In some cases there was a considerable hemorrhage into the lungs, with marked difficulty of breathing. If the obstruction was not so great as to seriously interfere with respiration, these cases recovered. Wounds of the head were necessarily more serious, but I observed several in which there was considerable destruction of brain tissue, which afterwards made good recoveries. One case was that of a boy who was shot in the left side of the skull, close to the coronal suture, the wound running anteroposteriorly, and who had right hemiplegia, from which, after removal of fragments and depressed bone, a good recovery was made. A young Boer was shot through the mastoid, the ball coming out just above the zygoma. He made an excellent recovery, with impaired hearing. I noticed that many apparently minor cases of grooving of the outer table of the skull were accompanied by reflex symptoms. Wounds of the eye were of frequent occurrence and in most cases were most destructive. I saw two cases in which both eyes were lost, the bullet passing through the

orbit and cutting the optic nerves. Another man had the optic nerve cut on one side, and, strange to relate, on the nerves of motion, cut on the other. There was almost complete ophthalmoplegia and mydriasis, but the vision was otherwise unimpaired. Cases of injury from fragments of shell and sand, thrown into the eye by exploding projectiles, were very common. Altogether, wounds showed a surprising tendency to heal rapidly, even under the most trying circumstances, which was due to the character of the bullet, the early application of an antiseptic dressing, enforced temperance among the troops, their general good health, and the careful and painstaking work of the Royal Army Medical Corps.

Before closing I wish to make a very few brief remarks upon the hospital administration in South Africa—a subject which is occupying a large place in the public mind because of the attacks which have been made upon the administration under the guise of philanthropic interest in the welfare of our soldiers. The position was this: The Orange Free State is a land which produces little towards its own support in food for men and horses. Its main artery of communication is a narrow-gauge railway, of the length of 725 miles, between Capetown and Bloemfontein,

where the alleged atrocities are said to have taken place. Suddenly a hundred thousand soldiers and twenty thousand camp-followers are thrown into this country, already bare and hardly able to feed itself. Add to this forty thousand horses, mules and oxen, all of whom, men and animals, have to be fed by this narrow-gauge railway. In addition there are munitions of war—horses, mules, guns and soldiers to be carried, besides miscellaneous hospital and personal stores, passengers, as well as food and merchandise for the residents of the country. It may, perhaps, give some idea of the pressure upon the railway transport when I state that the food supply of 100,000 men for six months comprises 8,000 tons of preserved meats, 8,000 tons of biscuits, 100 tons of tea, 1,500 tons of sugar, 4,000 tons of vegetables and other things in proportion. The 40,000 horses and mules eat 440 tons of hay and oats a day. With a limited rolling stock I leave it to you to imagine how difficult was the problem which confronted our army; a problem which was rendered still more difficult by interruption of communication by the blowing up of bridges. Then almost without warning, a great epidemic of enteric fever broke out. In one day upwards of a thousand men were admitted to the hospital.

Would it be surprising that beds and bedding were hard to find, or that orderlies and nurses were overworked? Naturally, under the circumstances, the field hospitals had to be utilized as stationary hospitals, though they are neither equipped nor intended for such work. The officers and men of the Royal Army Medical Corps rose to the occasion, and did magnificent work, heroically sacrificing themselves on the altar of duty, as is proved by the death and disability returns. In short, everything was done to meet the requirements of the emergency that circumstances permitted of, and there did not exist the neglect and misery so graphically and glibly set forth by certain writers. No one was more keenly interested and sympathetic than the Commander-in-Chief, Lord Roberts, and I always found him most willing to grant every reasonable facility in getting up stores and comforts, and in aiding our work in every way.

The history of this war redounds to the credit of the medical officers, civil and military, who worked so faithfully, so energetically, and so successfully to alleviate suffering and assuage pain. The medical organization of the army is by no means perfect, and will require readjustment when the war is over. The medical officers should be given entire control of their

supplies of medicines and drugs. They are now supplied by an ordnance department. Could anything be more absurd? There should be less red tape and more latitude in the purchase of comforts for the sick. A sufficiency of transport should be always available for the sick and wounded. The orderlies should receive higher pay and be recruited more carefully. The sanitary arrangements should be more directly under control of the medical department.

These are a few of the changes which will enable the medical department to more thoroughly and efficiently carry out its work of mercy and relief. The Royal Army Medical Corps contains some of the ablest and most capable men I have ever met. It is a credit to the army and an honor to the nation.

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Casualties up to December.

London, Dec. 18.—Total reduction of the field force,
South Africa, due to casualties, to end of November:

	Officers.	Men.
Killed in action, ...	311	3,118
Died of wounds, ...	93	952
Died in captivity, ...	4	92
Died of disease, ...	163	6,566
Accidental deaths, ...	4	176
Missing and prisoners (excluding those who have been recovered or have died in cap- tivity), ...	14	1,230
Sent home as invalids, ...	1,551	35,548
Total, ...	2,140	47,588
		49,728

Absolute Loss to the Army.

	Officers.	Men.
Deaths in South Africa, ...	575	10,804
Missing and prisoners, ...	14	1,236
Invalids sent home who have died, ...	4	231
Left the service as unfit, ...	...	1,314
Total, ...	593	13,585
		14,178

